

DESCRIPTION

Information Processing Apparatus

Technical Field

This invention relates to an information processing apparatus adapted for receiving Electronic Program Guide (EPG) information by a pocket bell receiver to process such information, and a processing method therefor.

Background Art

A Digital television broadcasts have been carried out by using a satellite. Since such broadcasts are carried out by using digital signals, it is possible to ensure a large number of channels such as 100 channels. In view of the above, in order to have the ability to select a desired channel from transmitted large number of channels, it is proposed to carry out transmission of electronic program guide information along with program information. A User can display such an electronic program guide on display to select the desired program while looking at that display.

A In the case of transmitting electronic program guide information as described above to receivers installed or provided at respective homes, large scale units are required as the unit of the transmitting side. In addition, in the case of transmitting electronic program guide information by using networks such as the internet, etc., the

transmitting side is required to provide plural telephone lines (circuits) in order to simultaneously send such information to a plurality of receivers.

Disclosure of the Invention

This invention has been made in view of such circumstances and its object is to receive electronic program guide information by pocket bell receiver to process such information, thereby making it possible to carry out, ^{easily} with ease, transmission/reception of electronic program guide information.

An information processing apparatus according to this invention comprises a receiver for receiving data when ^{the} inherent or specific calling number of an information processing apparatus is dialed by any other information processing apparatus so that the information processing apparatus is called, a memory for storing data received by this receiver, and a display control unit for controlling display of a picture prepared by data stored by this memory.

In this case, e.g., pocket bell receiver is used as the receiver and, e.g., character generator is used as the display control unit.

Moreover, an information processing apparatus according to this invention

comprises calling means such as personal computer for calling any other information processing apparatus having ^{an} inherent or specific calling number by dialing the calling number, ^{and} transmitter-transmitting control means such as ^a modem for transmitting data to any other information processing apparatus called by this

calling means.

A In the information processing apparatus according to this invention, when ^{the} inherent or specific calling number of an information processing apparatus is dialed by any other information processing apparatus so that the information processing apparatus is called, data is received and display of picture prepared ^{with} by the received data is controlled.

Still further objects of this invention and more practical merits obtained by this invention will become more apparent from the description of the embodiments which will be given below.

Brief Description of the Drawings

A FIG. 1 is a block diagram showing ^a information processing system to which an information processing apparatus according to this invention is applied.

A FIG. 2 is a block diagram showing ^{the} internal structure of receiver constituting this invention.

A FIG. 3 is a view for explaining ^{the} data structure of EPG data.

A FIG. 4 is a view showing a display example of picture displayed on ^a monitor.

Best Mode for Carrying Out the Invention

An information processing system in which an information processing apparatus (unit) according to this invention is used comprises, as shown in FIG. 1, a

A data transmitting source 1 including a personal computer 10 for preparing Electronic Program Guide (EPG) data, and a modem 11 for transmitting EPG data that the personal computer 10 has prepared, and a repeater 3 for repeating or replaying EPG data transmitted through a telephone line 2 from the data transmitting source 1. The repeater 3 transmits EPG data transmitted from the transmitting source 1 to receivers 5-1 to 5-5 (hereinafter in the case where there is no necessity to individually discriminate between receivers 5-1 to 5-5, reference A will be made merely ^{to} receiver 5) installed or provided in respective homes through an antenna 4.

The receivers 5-1 to 5-5 respectively include therewithin pocket bell receivers having specific or intrinsic calling numbers. The receivers 5-1, 5-2, 5-3, 5-4, 5-5 have the same calling number as inherent or specific calling number. In the case where the data transmitting source 1 dials that calling number, EPG data transmitted in a distributed manner from the data transmitting source 1 is received by all receivers of the receivers 5-1, 5-2, 5-3, 5-4, 5-5. Accordingly, even when the A data transmitting source ^{does not have} ~~has not~~ plural telephone lines 2, it can transmit the same EPG data to plural receivers 5 at a time.

Moreover, since the data transmitting source 1 can select receiver 5 which receives EPG data by calling number, it can transmit, in a distributed manner, different EPG data to individual receivers 5.

The receiver 5 which receives EPG data transmitted from the transmitting

source 1 has a function of video tape recorder. The receiver 5 receives, through an antenna 21, program transmitted to transmit that data to a tuner 31. ^{The user} User selects a desired program by a remote controller 23. The selection result is emitted toward a remote controller light receiving section 37 of the receiver 5 by using, e.g., infrared rays, etc. The selection result incident to this light receiving section 37 is outputted to the tuner 31 through a microcomputer 36. The tuner 31 selects program on the basis of the inputted selection result to output the selected program to a reproducing/recording section 32. The reproducing/recording section 32 reproduces the inputted program to output it to a monitor 22 through a character generator 33. In addition, the reproducing/recording section 32 records program by designation (instruction) of user with respect to video cassette tape which is set therewithin and is not shown.

The receiver 5 includes a key input section 38 composed of plural operation keys. This key input section 38 is constituted so that operations similar to operations carried out with the remote controller 23 can be carried out.

The pocket bell receiver 34 accommodated within the receiver 5 receives EPG data transmitted through the repeater 3. The received EPG data is stored ⁱⁿ into a memory 35 provided at the receiver 5. The EPG data stored in this memory 35 is adapted so that in the case where user instructs display of EPG by the remote controller 23, such EPG data is read out from the memory 35 by control of the microcomputer 36 and is outputted to the character generator 33. The character

A generator 33 prepares ^{the} EPG on the basis of inputted EPG data to output it to the monitor 22.

A Here ^{the} data structure of EPG data transmitted from the data transmitting source 1 will be described with reference to FIG. 3. This EPG data consists of data of 51 bytes in total ^{CONSISTING} of program starting year of 2 bytes, program starting month of 1 byte, program starting day of 1 byte, program starting time of 2 bytes, program end time of 2 ^{byte}_{bytes}, title name of 40 ^{byte}_{bytes}, program channel (CH) of 1 bytes, program genre of 1 byte and rating of 1 byte. As the program name, data up to 20 characters by 40 bytes can be transmitted. Accordingly, the number of bytes also changes ^{or} ~~by increasing decreasing~~ ^{increase or decrease} of the number of characters. At present, since the number of bytes which can be transmitted at a time to the pocket bell receiver 34 is set to 100 bytes, 89 bytes at the maximum is used.

The operation of respective units (sections) shown in FIGS. 1 and 2 in the case where transmission/reception of such EPG data is carried out will now be described.

A A ^{person} ~~Person~~ (User) who transmits EPG data inputs respective information shown in FIG. 3 by using the personal computer PC 10 of the data transmitting source 1. The personal computer 10 prepares EPG data of the data structure shown in FIG. 3 on the basis of inputted information. Such EPG data are prepared ^{for} every ~~every~~ ^{one} programs. Furthermore, a user who transmits such data allows the personal computer 10 to dial ^{the} calling No. that the receiver 5 which is desired to transmit prepared EPG

A ^{Furthermore,} data has. *Further,* by the modem 11, the prepared EPG data is converted into data in conformity with the telephone line 2 and is transmitted to the repeater 3.

The EPG data transmitted to the repeater 3 is transmitted to designated receiver 5 through the antenna 4. The transmitted EPG data is received by the *A* pocket bell receiver 34 of the receiver 5. The received EPG data is stored ^{IN} into the *A* memory 35. In this way, EPG data transmitted ^{for} every respective one ^{program} program are successively stored ^{IN} into the memory 35. Thus, EPG data of plural programs are stored.

A When ^a user desires to display ^{an} EPG on the monitor 22, he operates a predetermined key or keys of the remote controller 23 or a predetermined key or *A* keys provided at the key input section 38. In the case where ^a signal corresponding to operation is inputted from the remote controller 23 or the key input section 38 to the microcomputer 36, processing corresponding to that signal is carried out. In the *A* case where that signal indicates designation of ^{an} display of EPG, the microcomputer *A* 36 reads out ^{the} EPG data stored in the memory 35 to output it to the character generator 33.

The character generator 33 prepares EPG on the basis of inputted EPG data.

thus The prepared EPG is outputted to the monitor 22 and is displayed thereon. FIG. 4 shows an example of display of EPG displayed on the monitor 22. Broadcasting *A* date (year, month and day) is displayed at the upper portion of ^{an} picture, and *A* broadcasting channel names are displayed on the ^{abscissa} therebelow. *Further,*

A Broadcasting

broadcasting time zones are displayed at the left portion of picture. In addition, program names corresponding to respective channels and broadcasting time zones are displayed.

A user operates a predetermined key or keys of the remote controller 23,

thereby making it possible to operate cursor 41. Thus, cursor 41 is moved onto the program name in which picture recording reservation is desired to be conducted to carry out a predetermined operation, thereby making it possible to carry out picture recording reservation of that program.

A In the example shown in FIG. 4, ^{the} program of "souvenir full up" broadcast from 10 hours 30 minutes (10:30) to 11 hours (11:00) at 10-th channel (CH) is caused to undergo picture recording reservation, and is displayed in the half-tone dot meshing state so as to discriminate such program from other programs. Of

A course, in order to discriminate ^{the} corresponding program from other programs, there may be employed a method of displaying by color or a method of displaying by marking.

A While ^{the} display example shown in FIG. 4 is merely one example, program table (EPG) corresponding to one day may be displayed. Moreover, in the case

A where a portion of ^{a program} program table corresponding to one day is caused to be displayed as shown in FIG. 4, ^{the} program table displayed is also caused to be slid in accordance with movement of cursor 41. By employing a configuration such that the program title is slid, it becomes possible to display program table corresponding

to one day.

A As stated above, by employing pocket bell receiver 34, transmitting source of EPG data is not required to have plural telephone lines and it is possible to prepare EPG data by simple device such as personal computer, etc. to transmit it.

A Moreover, while data which can be transmitted to the pocket bell receiver 34 has an upper limit of 100 bytes at present, transmitting processing operations are carried out plural times as described above, thereby making it possible to transmit a large amount of data.

As the case where the data transmitting source 1 carries out transmission of EPG data, there may be employed various transmitting forms, such as, for example, transmitting operation at a predetermined time every day or transmitting when there is a request from user, etc.

A While the structure that pocket bell receiver 34 is included within receiver 5 has been described in the above explanation, there may be employed a configuration such that pocket bell receiver 34 and receiver 5 are connected at the outside. Furthermore, pocket bell receiver may be replaced by device having a similar function in place of pocket bell receiver 34.

A Furthermore, as data to be transmitted, even data other than except for EPG data may be used in this invention. In addition, while it has been described that receiver 5 is a video tape recorder, the receiver may be applied to a device such as television image receiver or STB (Set Top Box), etc.

A As ^a providing medium for providing, to ^a user ^a computer program for executing processing of the above-described EPG data, etc., there may be included ^a transmission medium by network such as internet, digital satellite, etc. in addition to ^{an} information recording medium such as magnetic disc, CD-ROM, etc.

Industrial Applicability

A In accordance with this invention, since when inherent or specific calling number of information processing apparatus is dialed by any other information processing apparatus so that the information processing apparatus is called, data is received to control display of picture prepared by the received data, it is possible to process EPG data also in information processing apparatus of simple structure.